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Cross-Border Lobbying in Preferential Trading Agreements: Implications for External Tariffs*

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Abstract

This paper examines the effect of cross-border lobbying on domestic lobbying and on external tariffs in both Customs Union (CU) and Free Trade Area (FTA). We do so by developing a two-stage game which endogenizes the tariff formation function in a political economic model of the directly unproductive rent-seeking activities type. We find that cross-border lobbying unambiguously increases both domestic lobbying and the equilibrium common external tariffs in a CU. The same result also holds for FTA provided tariffs for the member governments are strategic complements. We also develop a specific oligopolistic model of FTA and show that tariffs are indeed strategic complements in such a model.

Keywords: Free Trade Area, Customs Union, Preferential Trading Agreements, Domestic lobbying, Cross-border lobbying, External tariffs.
JEL Classification: F13

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1 Introduction

The role of lobbying in policy making has been widely analyzed (for a survey see, for example, Rodrik, 1995). The analysis of *cross-border* lobbying is however relatively under-researched. Given the inter-connected nature of the global economy today, policies in one country can significantly affect nationals of other countries. This is particularly true for countries within a trading block. Therefore, one would expect some degree of cross-border lobbying within a Preferential Trading Area (PTA) whether it is a Free Trade Area (FTA) or a Customs Union (CU).[1,2] Schiff and Winters (2003) discuss the case of lobbying in general, and of cross-border lobbying in particular, in the EU. In fact, cross-border lobbying has become widespread in the EU. Organizations such as Eurocommerce, EuroBio (European Association for Bio-industries), and Friends of Europe are extremely active in EU-wide lobbying.

The incidence of cross-border lobbying in North-America is even more well documented.[3] Gawande et al. (2006) finds that foreign lobbies play an important role in the determination of U.S. tariffs. In a recent paper Stoyanov (2009) finds significant impact of foreign lobbying on the Canadian trade policy and that foreign firms with preferential market access lobby the Canadian government for more protection. In a similar vein, a lobby firm in the U.S.A. writes on its website, "Holland & Knight's International Trade Group represents the interests of ... foreign industries before the agencies of the United States Government, ..." (www.hklaw.com/id16048/mpgid4844/).

[1] In an FTA, member nations trade freely among themselves, but set tariffs on non-members independently. In a CU, on the other hand, in addition to intra-bloc free trade, the members set a common tariff on non-members, i.e., the common external tariff (CET). North American Free Trade Area (NAFTA) and the European Union (EU) are prominent examples of FTA and CU, respectively. The literature on the economics of PTA dates back to Viner, 1950. There has been a renewed interest in the subject (see, for example, Riezman, 1979; Gatsios and Karp, 1991 and 1995; Krishna, 1998; Panagariya and Krishna, 2002; Bond et al., 2004, Raimondos-Møller and Woodland, 2006; Abrego at al., 2006; Melatos and Woodland, 2007.)

[2] There is a literature that examines the relationship of' multilateral trade agreements with preferential ones (see, for example, Bagwell and Staiger, 1997, 1998; Bhagwati et al., 1998; Saggi, 1996).

[3] Quite detailed data in the U.S.A on lobbying firms, amount spent, and their clients can be found at www.opensecret.org.

In many countries, there are limits on lobbying, particularly lobbying in the form of campaign contributions. The restrictions are however much more stringent for cross-border lobbying than for domestic ones. In some countries campaign contributions from foreign sources are completely disallowed. However, it is very difficult to legislate against non-monetary form of lobbying, and, as mentioned above, these go on. However, for analytical purposes, it is important to distinguish domestic lobbying from cross-border ones.

In the theoretical literature, the role of lobbying in formulating, and forming, a PTA has been analyzed extensively (see, for example, Cadot et al., 1999; Richardson, 1994; Grossman and Helpman, 1995 (appendix); Panagariya and Findlay, 1996; Bandyopadhyay and Wall, 1999). However, the effect of cross-border lobbying on the determination of domestic lobbying and external tariffs in a PTA has not been examined much hitherto, and this is where the main contribution of the present paper is. The works by Gwande et al. (2006) and Stoyanov (2009), mentioned before, are primarily empirical. We examine the effect of foreign lobbying on domestic trade policy via two channels: one is the direct effect of cross-border lobbying on the behavior of the government, and the other is an indirect effect that first affects the level of domestic lobbying and thus government behavior. This paper considers a form of lobbying that does not involve a transfer of money but has a cost to the lobby groups in the form of resources. To be more specific, we consider the directly unproductive rent-seeking activities (DUPs) approach to lobbying, incorporating and endogenizing in it the tariff-formation approach of Findlay and Wellisz (1982).[4] We use a two-stage game where, in the first stage, the lobby groups decide on the levels of domestic lobbying, and in the second stage external tariffs are determined. Given the equilibrium of this two-stage game, we examine effect of cross-border lobbying on the level of domestic lobbying and on external tariffs. We do so under two different types of PTA, viz., CU and FTA.

[4]There are many alternative approaches to modeling lobbying activities including the directly unproductive rent-seeking activities (DUPs) approach (Bhagwati, 1982), the tariff-formation function approach (Findlay and Wellisz, 1982), the political support function approach (Hillman, 1982), median voter approach (Mayer, 1984), the campaign contribution approach (Magee et al., 1989), and the political contributions approach (Grossman and Helpman, 1994).

In section 2, we analyze the case of CU, and then FTA is considered in section 3. The analysis in these two sections are fairly general in nature and no specific assumptions are made on the nature of the underlying economies. At the end of section 3 (in section 3.2), we consider a specific oligopolistic model of FTA to see if the assumptions and conditions of section 3 — under which the main results are derived — are satisfied for this specific model. Some concluding remarks are made in section 4.

2 Customs Union

For simplicity, we consider a CU with two members, labeled A and B. The rest of the world is labeled C. There is one non-numeraire good — we shall call this good "CU-importable" — that is imported from C by A and B and subject to a CET t, which is decided by the CU jointly. This decision is influenced by lobbying from the producers of this good in A and B.

We assume lobbying is of the DUP type. Domestic producers of the CU-importable in country i spend a total amount of h_i (in units of some scarce resources) on lobbying both governments. Since this lobbying is socially unproductive, it entails a social welfare loss of the amount h_i in country i ($i = A, B$). Consumers' surplus, domestic profits plus tariff revenue, in country i is affected by the level of CET t; we denote it by $S_i(t)$ with $S_i'' < 0$ and $S_i''' \simeq 0$. We assume that country i's government cares about not only social welfare, given by $S_i(t) - h_i$, but also the net total income of the lobby group.

Net profits of producers from countries A and B are given by

$$\pi^i(t) - h_i, \quad i = A, B, \tag{1}$$

where $\pi^i(t)$ satisfied $\pi_t^i > 0$, $\pi_{tt}^i \geq 0$ and $\pi_{ttt}^i \simeq 0$.

Having introduced most of the important variables and functions, we proceed to the solution of the optimal level of CETs. We consider a two-stage game. In stage one, domestic producers decide on their lobbying levels by maximizing their joint profits. In stage 2, the CU authority decides on the level of CET by maximizing a weighted sum of the two governments' objective functions. To obtain a sub-game perfect equilibrium we work with backward induction. We now describe the two stages, starting with the second stage.

Let h_{ij} $(i = j = A, B)$ be the amount of lobbying done by the firm in country i on the government of country j. That is, h_{AA} and h_{BB} are domestic lobbying levels and h_{AB} and h_{BA} are the levels of cross-border lobbying. Net profits (of the firm in country i) are given by

$$\tilde{\pi}^i = \pi^i(t) - h_{iA} - h_{iB}, \quad i = A, B. \tag{2}$$

We endogenize the tariff-formation function by making the reasonable assumption that the weight ρ^{ij} attached to ith lobby group's (ith firm's) profits by country j government in its objective function $(i, j = A, B)$, is an increasing function of the amount of lobbying it receives. In particular, we assume[5]

$$\rho^{AA} = \rho(h_{AA}),\ \rho^{BA} = \rho(h_{BA}),\ \rho^{AB} = \rho(h_{AB}),\ \text{and } \rho^{BB} = \rho(h_{BB}), \tag{3}$$

We assume that $\rho' > 0$ and $\rho'' < 0$. The assumptions made so far are formally stated as

Assumption 1 *$S''_j < 0$, $S'''_j \simeq 0$, $\pi^j_t(t) > 0$, $\pi^j_{tt}(t) \geq 0$, $\pi^j_{ttt}(t) \simeq 0$, $\rho'(h^j) > 0$, $\rho''(h^j) < 0$ $(j = A, B)$.*

Since lobbying now is done by the two firms individually and non-cooperatively, the objective functions of the two governments and the CU authority are

$$\begin{aligned} G^A &= S^A(t) - h_{AA} - h_{AB} + \rho(h_{AA})\tilde{\pi}^A + \rho(h_{BA})\tilde{\pi}^B, & (4)\\ G^B &= S^B(t) - h_{BA} - h_{BB} + \rho(h_{AB})\tilde{\pi}^A + \rho(h_{BB})\tilde{\pi}^B, & (5)\\ G^{CU} &= \alpha G^A + (1-\alpha) G^B. & (6) \end{aligned}$$

[5]For notational simplicity, but without any loss of generality, we assume the functional forms to be the same.

In stage 2 of the game, the CU authority maximizes G^{CU} with respect to t, giving rise to the first-order condition:

$$\begin{aligned}\frac{\partial G^{CU}}{\partial t} &= \alpha S_t^A + (1-\alpha)S_t^B + \alpha\rho(h_{AA})\pi_t^A + \alpha\rho(h_{BA})\pi_t^B + (1-\alpha)\rho(h_{AB})\pi_t^A \\ &\quad +(1-\alpha)\rho(h_{BB})\pi_t^B = 0. \qquad (7)\end{aligned}$$

This simply states that the weighted average of the net marginal benefits of the two member countries is zero.

From (7), we find

$$\frac{\partial t}{\partial h_{AA}} = -\frac{\alpha\pi_t^A\rho'(h_{AA})}{\Delta_1} > 0, \quad \frac{\partial t}{\partial h_{BA}} = -\frac{\alpha\pi_t^B\rho'(h_{BA})}{\Delta_1} > 0, \qquad (8)$$

$$\frac{\partial t}{\partial h_{AB}} = -\frac{(1-\alpha)\pi_t^A\rho'(h_{AB})}{\Delta_1} > 0, \quad \frac{\partial t}{\partial h_{BB}} = -\frac{(1-\alpha)\pi_t^B\rho'(h_{BB})}{\Delta_1} > 0, \qquad (9)$$

where

$$\Delta_1 = \alpha S_{tt}^A + (1-\alpha)S_{tt}^B + \alpha\rho(h_{AA})\pi_{tt}^A + \alpha\rho(h_{BA})\pi_{tt}^B + (1-\alpha)\rho(h_{AB})\pi_{tt}^A + (1-\alpha)\rho(h_{BB})\pi_{tt}^B < 0.$$

That is, any lobbying — domestic or cross-border — increases the optimal level of the CET. This happens primarily because lobbying increases the weight attached to profits of the lobby group and thus the marginal benefit of the CU authorities.

As for the determination of the levels of lobbying, we assume the levels of domestic lobbying to be endogenous and the levels of cross-border lobbying to be exogenous due to restrictions imposed on such activities. The levels of domestic lobbying are determined in the first stage by the two lobby groups non-cooperatively in a Nash equilibrium as

$$\frac{\partial \tilde{\pi}^A}{\partial h_{AA}} = \pi_t^A \cdot \frac{\partial t}{\partial h_{AA}} - 1 = 0, \qquad (10)$$

$$\frac{\partial \tilde{\pi}^B}{\partial h_{BB}} = \pi_t^B \cdot \frac{\partial t}{\partial h_{BB}} - 1 = 0, \qquad (11)$$

which can be written as

$$\alpha\left(\pi_t^A\right)^2\rho'(h_{AA}) = -\Delta_1, \tag{12}$$

$$(1-\alpha)\left(\pi_t^B\right)^2\rho'(h_{BB}) = -\Delta_1. \tag{13}$$

The second terms on the right hand sides of (10) and (11) are the marginal costs of an addition unit of lobbying. The first terms are the marginal benefits that occur due to an increase in profits induced by the increase in the level of CET because of lobbying.

2.1 Cross-border lobbying and CET

Having described the equilibrium determination of domestic lobbying and CET, we shall now examine how changes in the levels of cross-border lobbying affects the equilibrium.

Differentiating (12) and (13) we obtain

$$\beta_{11}dh_{AA}+\beta_{12}dh_{BB} = \beta_{13}dh_{BA}+\beta_{14}dh_{AB}, \tag{14}$$

$$\beta_{21}dh_{AA}+\beta_{22}dh_{BB} = \beta_{23}dh_{BA}+\beta_{24}dh_{AB}, \tag{15}$$

where the coefficients β_{ij} $(i,j=A,B)$ are defined in the Appendix I.

We assume that second order conditions and the Nash stability conditions are satisfied in the first stage, i.e.,

Assumption 2 $\quad \beta_{11}<0, \quad \beta_{22}<0, \quad \Delta_2=\beta_{11}\beta_{22}-\beta_{12}\beta_{21}>0.$

Solving (14) and (15), and using assumption 2 and the signs of the coefficients given in Appendix I, we obtain

$$\Delta_2\cdot\frac{dh_{AA}}{dh_{BA}} = \beta_{13}\beta_{22}-\beta_{23}\beta_{12}>0, \quad \Delta_2\cdot\frac{dh_{BB}}{dh_{BA}}=\beta_{11}\beta_{23}-\beta_{21}\beta_{13}>0,$$

$$\Delta_2\cdot\frac{dh_{AA}}{dh_{AB}} = \beta_{14}\beta_{22}-\beta_{24}\beta_{12}>0, \quad \Delta_2\cdot\frac{dh_{BB}}{dh_{AB}}=\beta_{11}\beta_{24}-\beta_{21}\beta_{14}>0,$$

Proposition 1 *An increase in cross-border lobbying unambiguously increases the equilibrium value of a common external tariff, and thus make it even larger than its non-political equilibrium level.*

As we have shown before (see (8) and (9)), cross-border lobbying, for given levels of domestic lobbying, increases the optimal value of the CET. This in turn increases the marginal profits π_t^A and π_t^B since profits are convex functions of tariffs (see assumption 1), and thus the marginal benefits of domestic lobbying, raising the equilibrium levels of domestic lobbying. Since any lobbying always increases the CET, cross-border lobbying increases the equilibrium value of the CET directly as well as indirectly via an induced rise in the levels of domestic lobbying.

3 Free Trade Areas

In the previous section we analyzed a Customs Union where tariffs against the non-member countries are the same for the member countries. In this section we shall consider the case of a Free Trade Area where the member countries can set their own tariffs against the non-member countries. We shall do so in two ways. First, in section 3.1 we shall present a very general analysis without invoking specific assumptions on the structure and nature of the economies. Then in section 3.2. we shall consider specific oligopolistic model of PTA.

3.1 A General Analysis

Since each member country sets its own external tariff rate, profits are functions of two tariff rates. Denoting by t_A and t_B the external tariffs set by country A and B respectively, net profits of the firm in country i is given by:

$$\tilde{\pi}^i = \pi^i(t_A, t_B) - h_{iA} - h_{iB}, \quad i = A, B,$$

where, as before, h_{ij} $(i = j = A, B)$ is the amount of lobbying done by the firm in country i on the government of country j $(i, j = A, B)$.

We make the following assumptions of the profit functions:

Assumption 3 $\pi^i_j \geq 0,$, $\pi^i_{jk} \geq 0$, *and* $\pi^i_{jkl} \simeq 0$ *for* $i = A, B$ *and* $j, k, l = t_A, t_B$.

Since lobbying, as in the case of Customs Union (see (4) and (5)), is done by the two firms individually and non-cooperatively, the objective functions of the two governments are

$$G^A = S^A(t_A, t_B) - h_{AA} - h_{AB} + \rho(h_{AA})\tilde{\pi}^A + \rho(h_{BA})\tilde{\pi}^B, \quad (16)$$

$$G^B = S^B(t_A, t_B) - h_{BA} - h_{BB} + \rho(h_{AB})\tilde{\pi}_A + \rho(h_{BB})\tilde{\pi}_B, \quad (17)$$

where $S^A(t_A, t_B)$ and $S^B(t_A, t_B)$ are the sums of consumers surplus, profits and tariff revenue in the two countries.

In stage 2 of the game, each government maximizes its own objective function in a Nash game, giving rise to the first order conditions

$$G^A_{t_A} = \frac{\partial G^A}{\partial t_A} = S^A_{t_A} + \rho(h_{AA})\pi^A_{t_A} + \rho(h_{BA})\pi^B_{t_A} = 0, \quad (18)$$

$$G^B_{t_B} = \frac{\partial G^B}{\partial t_B} = S^B_{t_B} + \rho(h_{AB})\pi^A_{t_B} + \rho(h_{BB})\pi^B_{t_B} = 0, \quad (19)$$

which implicitly define the response functions

$$t_A = t_A(h_{AA}, h_{BB}, h_{AB}, h_{BA}), \quad t_B = t_B(h_{AA}, h_{BB}, h_{AB}, h_{BA}). \quad (20)$$

Differentiating (18) and (19), we find

$$G^A_{t_At_A}\, dt_A + G^A_{t_At_B}\, dt_B = -\pi^A_{t_A}\rho'(h_{AA})\, dh_{AA} - \pi^B_{t_A}\rho'(h_{BA})\, dh_{BA}, \quad (21)$$

$$G^B_{t_Bt_A}\, dt_A + G^B_{t_Bt_B}\, dt_B = -\pi^A_{t_B}\rho'(h_{AB})\, dh_{AB} - \pi^B_{t_B}\rho'(h_{BB})\, dh_{BB}, \quad (22)$$

where

$$
\begin{aligned}
G^A_{t_A t_A} &= S^A_{t_A t_A} + \rho(h_{AA})\pi^A_{t_A t_A} + \rho(h_{BA})\pi^B_{t_A t_A}, \\
G^A_{t_A t_B} &= S^A_{t_A t_B} + \rho(h_{AA})\pi^A_{t_A t_B} + \rho(h_{BA})\pi^B_{t_A t_B}, \\
G^B_{t_B t_A} &= S^B_{t_B t_A} + \rho(h_{BB})\pi^B_{t_B t_A} + \rho(h_{AB})\pi^A_{t_B t_A}, \\
G^B_{t_B t_B} &= S^B_{t_B t_B} + \rho(h_{BB})\pi^B_{t_B t_B} + \rho(h_{AB})\pi^A_{t_B t_B},
\end{aligned}
$$

We assume the second-order conditions and the Nash-stability condition to be satisfied, i.e.,

Assumption 4 $G^A_{t_A t_A} < 0$, $G^B_{t_B t_B} < 0$, *and* $\Delta_3 = G^A_{t_A t_A} G^B_{t_B t_B} - G^A_{t_A t_B} G^B_{t_B t_A} > 0.$

Solving (21) and (22), we get:

$$
\begin{aligned}
\Delta_3 \cdot \frac{\partial t^A}{\partial h_{AA}} &= -\pi^A_{t_A}\rho'(h_{AA})G^B_{t_B t_B} > 0, \quad \Delta_3 \cdot \frac{\partial t^B}{\partial h_{BB}} = -\pi^B_{t_B}\rho'(h_{BB})G^A_{t_A t_A} > 0, && (23) \\
\Delta_3 \cdot \frac{\partial t^A}{\partial h_{BA}} &= -\pi^B_{t_A}\rho'(h_{BA})G^B_{t_B t_B} > 0, \quad \Delta_3 \cdot \frac{\partial t^B}{\partial h_{AB}} = -\pi^A_{t_B}\rho'(h_{AB})G^A_{t_A t_A} > 0, && (24) \\
\Delta_3 \cdot \frac{\partial t^A}{\partial h_{AB}} &= \pi^A_{t_B}\rho'(h_{AB})G^A_{t_A t_B}, \qquad \Delta_3 \cdot \frac{\partial t^B}{\partial h_{BA}} = \pi^B_{t_A}\rho'(h_{BA})G^B_{t_B t_A}, && (25) \\
\Delta_3 \cdot \frac{\partial t^A}{\partial h_{BB}} &= \pi^B_{t_B}\rho'(h_{BB})G^A_{t_A t_B}, \qquad \Delta_3 \cdot \frac{\partial t^B}{\partial h_{AA}} = \pi^A_{t_A}\rho'(h_{AA})G^B_{t_B t_A}. && (26)
\end{aligned}
$$

From (23), (24) and assumption 4, it follows that an increase in lobbying to a government — domestic or cross-border — increases the level of optimal external tariffs in that country. Equation (25) and (26) give us the effect of an increase in lobbying to a government on the optimal external tariffs in the other country, and these effects are positive (negative) if and only if tariffs for the two governments are strategic complements (substitutes) to each other, i.e., if and only if $G^A_{t_A t_B} > 0$ and $G^B_{t_B t_A} > 0$ ($G^A_{t_A t_B} < 0$ and $G^B_{t_B t_A} < 0$). Formally,

Lemma 1 *An increase in the level of lobbying to the government of a country (either by the domestic firm or by the firm in the other member country) increases the level of optimal external tariffs in that country, and increases (decreases) the level of optimal tariffs in the other country if tariffs for the two governments are strategic complements (substitutes) to each other.*

An increase in the amount of lobbying received by a government from domestic or foreign source increases the net marginal benefit of that government by increasing the value of the weights attached to the profits of the lobby groups. This increases the optimal level of the external tariff set by that government. This is the direct effect. Indirect effects occur as an induced increase in tariffs set by a country, due to lobbying received by it, affects the marginal benefits of the other country. This indirect effect is positive (negative) if tariffs for the two governments are strategic complements (substitutes) to each other.

The levels of domestic lobbying are determined in the first stage by the two lobby groups non-cooperatively in a Nash equilibrium as

$$\frac{\partial \tilde{\pi}^A}{\partial h_{AA}} = \pi^A_{t_A} \cdot \frac{\partial t_A}{\partial h_{AA}} + \pi^A_{t_B} \cdot \frac{\partial t_B}{\partial h_{AA}} - 1 = 0, \tag{27}$$

$$\frac{\partial \tilde{\pi}^B}{\partial h_{BB}} = \pi^B_{t_A} \cdot \frac{\partial t_A}{\partial h_{BB}} + \pi^B_{t_B} \cdot \frac{\partial t_B}{\partial h_{BB}} - 1 = 0, \tag{28}$$

The first two terms on the right hand sides of the above two equations are the marginal benefits of domestic lobbying. They occur via changes in profits because of induced changes in tariffs in the two countries due to lobbying. The third term is the marginal cost of lobbying.

Totally differentiating (27) and (28), we get

$$\alpha_{11} dh_{AA} + \alpha_{12} dh_{BB} = \alpha_{13} dh_{BA} + \alpha_{14} dh_{AB}, \tag{29}$$

$$\alpha_{21} dh_{AA} + \alpha_{22} dh_{BB} = \alpha_{23} dh_{BA} + \alpha_{24} dh_{AB}, \tag{30}$$

where α_{ij}'s are defined in Appendix II.

We assume that second order conditions and the Nash stability conditions are satisfied in the first stage, i.e.,

Assumption 5 $\quad \alpha_{11} < 0, \quad \alpha_{22} < 0, \quad \Delta_4 = \alpha_{11}\alpha_{22} - \alpha_{12}\alpha_{21} > 0.$

Solving (29) and (30), we obtain

$$\Delta_4 \cdot \frac{dh_{AA}}{dh_{BA}} = \alpha_{13}\alpha_{22} - \alpha_{23}\alpha_{12}, \quad \Delta_4 \cdot \frac{dh_{BB}}{dh_{BA}} = \alpha_{11}\alpha_{23} - \alpha_{21}\alpha_{13},$$

$$\Delta_4 \cdot \frac{dh_{AA}}{dh_{AB}} = \alpha_{14}\alpha_{22} - \alpha_{24}\alpha_{12}, \quad \Delta_4 \cdot \frac{dh_{BB}}{dh_{AB}} = \alpha_{11}\alpha_{24} - \alpha_{21}\alpha_{14},$$

Using assumption 5 and the signs of the coefficients given in Appendix II, it should be clear that if tariffs in the two member countries are strategic complements to each other, i.e., $G^A_{t_A t_B} > 0$ and $G^B_{t_B t_A} > 0$, then α_{12} and α_{21} are both positive and α_{13}, α_{23}, α_{14} and α_{24} are all negative. Then from the above equations it follows that the level of domestic lobbying increases with foreign lobbying.

Proposition 2 *An increase in cross-border lobbying increases equilibrium level of domestic lobbying in both countries if tariffs in the two countries are strategic complements to each other. This in turn implies that an increase in cross-border lobbying increases the optimal levels of external tariffs in both countries.*

From lemma 1 we know that lobbying of any kind, *ceteris paribus*, increases optimal external tariffs if tariffs in the two countries are strategic complements to each other. An increase in external tariffs raises the marginal benefits of domestic lobbying by increasing marginal profits $\pi^A_{t_A}$ $\pi^A_{t_B}$ $\pi^B_{t_A}$ $\pi^B_{t_B}$ in (27) and (28) if tariffs in the two countries are strategic complements to each other. Thus, in this case, cross-border lobbying raises the levels of domestic lobbying, and consequently the equilibrium external tariffs are raised directly and indirectly via increases in the levels of domestic lobbying.

3.2 An Oligopolistic Model of FTA

We shall now put more structure to the framework analyzed in section 3.1 to throw light on the pattern of strategic complementarity/substitutability in tariffs. This in turn will inform us about the effect of cross-border lobbying on equilibrium tariffs in an FTA.

There are three countries: A and B are members of a FTA and a non-member country C. There are three goods: (i) one competitive numeraire good which is exported by countries A and B, (ii) an imperfectly competitive good which is produced and consumed in countries A and B only, and (iii) a good that is imperfect substitute of the second good and is produced in country C and exported to the member countries. Country C is able to discriminate between the two markets, and the producer prices for the two markets are p_A^C and p_B^C respectively. As FTA members, countries A and B can set their own import tariffs for this good; we shall denote these rates by t_A and t_B. The market for the second good is fully integrated in countries A and B and there is free trade.[6]

The utility function of a representative consumer in countries A and B are:

$$u^A(D_A, X_A^C, y_A) = \alpha D_A + \bar{\alpha} X_A^C - \frac{\beta(D_A)^2 + \bar{\beta}(X_A^C)^2 + 2\gamma D_A X_A^C}{2} + y_A, \tag{31}$$

$$u^B(D_B, X_B^C, y_B) = \alpha D_A + \bar{\alpha} X_B^C - \frac{\beta(D_B)^2 + \bar{\beta}(X_B^C)^2 + 2\gamma D_B X_B^C}{2} + y_B, \tag{32}$$

y^i is the consumption of the numeraire good, X_i^C is imports from country C (and domestic consumption in country i), and D_i is the domestic consumption of the third good in country i $(i = A, B)$.

Inverse demands function are derived from the above utility functions as:

$$p = \alpha - \beta D_A - \gamma X_A^C, \quad p = \alpha - \beta D_B - \gamma X_B^C, \tag{33}$$

$$p_A^C + t_A = \bar{\alpha} - \bar{\beta} X_A^C - \gamma D_A, \quad p_B^C + t_B = \bar{\alpha} - \bar{\beta} X_B^C - \gamma D_B, \tag{34}$$

[6] By construction — i.e., by the assumptions of market segmentation for country C's exports to the member countries, and of product differentiation between country C's exports and the good produced in the member countries, we are ruling out the issue of 'internal trade deflection' as in Richardson (1995)

Profits of the three firms in country A, B and C are:

$$\pi^A = (p - m_A)X_A, \quad \pi^B = (p - m_B)X_B, \tag{35}$$

$$\pi^C = (p_A^C - m_C)X_A^C + (p_B^C - m_C)X_B^C, \tag{36}$$

where X_A and X_B are the domestic production of the homogeneous non-numerarire good in countries A and B respective, and m_i is the constant average and marginal cost of production in country i $(i = A, B, C)$.[7]

We make the following standard assumption on the parameters:

Assumption 6 $\beta\bar{\beta} - \gamma^2 > 0.$

Since the market for good D is fully integrated in the two member countries, we have:

$$D_A + D_B = X_A + X_B. \tag{37}$$

Summing the two equations in (33) and using (37), we get

$$p = \alpha - \frac{\beta}{2} \cdot (X_A + X_B) - \frac{\gamma}{2} \cdot (X_A^C + X_B^C). \tag{38}$$

From (36), (35), (34) and (38), the first-order Cournot-Nash profit-maximizing condition are derived as:

$$p - m_A = \frac{\beta X_A}{2}, \quad p - m_B = \frac{\beta X_B}{2}, \tag{39}$$

$$2\beta(p_A^C - m_C) = (\beta\bar{\beta} - \gamma^2)X_A^C + \gamma^2 X_B^C, \quad 2\beta(p_B^C - m_C) = (\beta\bar{\beta} - \gamma^2)X_B^C + \gamma^2 X_A^C. \tag{40}$$

[7] Fixed costs are excluded without any loss of generality.

Using (34) and (38) and differentiating (39) and (40), we get

$$\begin{aligned}
(4\beta\bar{\beta}-\gamma^2)dX_A+(2\beta\bar{\beta}-\gamma^2)dX_B &= \gamma d(t_A+t_B),\\
(2\beta\bar{\beta}-\gamma^2)dX_A+(4\beta\bar{\beta}-\gamma^2)dX_B &= \gamma d(t_A+t_B),\\
2(\beta\bar{\beta}-\gamma^2)dX_A^C+\gamma^2 dX_B^C &= -\frac{\gamma\beta}{2}\cdot d(X_A+X_B)-\beta dt_A,\\
\gamma^2 dX_A^C+2(\beta\bar{\beta}-\gamma^2)dX_B^C &= -\frac{\gamma\beta}{2}\cdot d(X_A+X_B)-\beta dt_B.
\end{aligned}$$

Solving the above equations we find

$$\frac{\partial X_A}{\partial t_A} = \frac{\partial X_A}{\partial t_B}=\frac{\partial X_B}{\partial t_A}=\frac{\partial X_B}{\partial t_B}=\frac{\gamma}{2(3\beta\bar{\beta}-\gamma^2)}>0, \tag{41}$$

$$\frac{\partial X_A^C}{\partial t_A} = -\frac{\beta(3\beta\bar{\beta}-2\gamma^2)}{2(\beta\bar{\beta}-\gamma^2)(3\beta\bar{\beta}-\gamma^2)}<0, \quad \frac{\partial X_B^C}{\partial t_A}=\frac{\beta\gamma^2}{2(\beta\bar{\beta}-\gamma^2)(3\beta\bar{\beta}-\gamma^2)}>0, \tag{42}$$

$$\frac{\partial X_A^C}{\partial t_B} = \frac{\beta\gamma^2}{2(\beta\bar{\beta}-\gamma^2)(3\beta\bar{\beta}-\gamma^2)}>0, \quad \frac{\partial X_B^C}{\partial t_B}=-\frac{\beta(3\beta\bar{\beta}-2\gamma^2)}{2(\beta\bar{\beta}-\gamma^2)(3\beta\bar{\beta}-\gamma^2)}<0. \tag{43}$$

These results are explained as follows. Tariffs on a good in a country reduces imports of that good into that country. This reduction in exports by country C prompts it to export more to the other country. However, total exports by country C falls. This fall in total exports in turn shifts up the inverse demand function for good D (see (38)) and this increases the output of this good in both countries.

Turning to the prices, differentiating (38) and (40) we get:

$$\frac{\partial p}{\partial t_A} = \frac{\partial p}{\partial t_B}=-\frac{\beta\gamma(2\beta\bar{\beta}-\gamma^2)}{(3\beta\bar{\beta}-\gamma^2)(\beta\bar{\beta}-\gamma^2)}, \tag{44}$$

$$\frac{\partial p_A^C}{\partial t_A} = -\frac{(6\beta\bar{\beta}-\gamma^2)}{4(3\beta\bar{\beta}-\gamma^2)}, \quad \frac{\partial p_A^C}{\partial t_B}=-\frac{\gamma^2}{4(3\beta\bar{\beta}-\gamma^2)}, \tag{45}$$

$$\frac{\partial p_B^C}{\partial t_B} = -\frac{(6\beta\bar{\beta}-\gamma^2)}{4(3\beta\bar{\beta}-\gamma^2)}, \quad \frac{\partial p_A^C}{\partial t_A}=-\frac{\gamma^2}{4(3\beta\bar{\beta}-\gamma^2)}. \tag{46}$$

Any tariff on exports by country C reduces its producer prices for both markets. The price for good D also falls as its production levels in both countries increase.

Solving (33) and (37), we find

$$D_A = \frac{X_A + X_B}{2} - \frac{\gamma(X_A^C - X_B^C)}{2\beta}, \qquad D_B = \frac{X_A + X_B}{2} + \frac{\gamma(X_A^C - X_B^C)}{2\beta},$$

and differentiating this we get

$$\frac{\partial D_A}{\partial t_A} = \frac{\gamma(5\beta\bar{\beta} - 3\gamma^2)}{4(3\beta\bar{\beta} - \gamma^2)(\beta\bar{\beta} - \gamma^2)} > 0, \qquad \frac{\partial D_A}{\partial t_B} = -\frac{\gamma(\beta\bar{\beta} + \gamma^2)}{4(3\beta\bar{\beta} - \gamma^2)(\beta\bar{\beta} - \gamma^2)} < 0, \quad (47)$$

$$\frac{\partial D_B}{\partial t_B} = \frac{\gamma(5\beta\bar{\beta} - 3\gamma^2)}{4(3\beta\bar{\beta} - \gamma^2)(\beta\bar{\beta} - \gamma^2)} > 0, \qquad \frac{\partial D_B}{\partial t_A} = -\frac{\gamma(\beta\bar{\beta} + \gamma^2)}{4(3\beta\bar{\beta} - \gamma^2)(\beta\bar{\beta} - \gamma^2)} < 0. \quad (48)$$

A country's tariffs on imports from country C reduces its consumption (imports) of that good, but increases consumption of its imperfectly substitute good D. Since tariffs in one country increases exports of the same good to the other country, the consumption of its imperfectly substitute good D in the other country goes down.

Now, the functions S^A and S^B from the previous subsections in the present context are:

$$S^A = \mathrm{CS}^A + t_A X_C^A + \pi^A, \quad S^B = \mathrm{CS}^B + t_A X_C^B + \pi^B,$$

and thus

$$\begin{aligned} dS^A &= -D_A dp - X_C^A d(p_A^C + t_A) + d(t_A X_C^A) + d\pi^A \\ &= -D_A dp - X_C^A dp_A^C + t_A dX_C^A + d\pi^A, \quad (49) \\ dS^B &= -D_B dp - X_C^B d(p_B^C + t_B) + d(t_B X_C^B) + d\pi^B \\ &= -D_B dp - X_C^B dp_B^C + t_B dX_C^B + d\pi^B. \quad (50) \end{aligned}$$

Substituting the solution into (35), we find:

$$\pi_{t_A}^A = \pi_{t_B}^A = \frac{\beta\gamma X_A}{2(3\beta\bar{\beta} - \gamma^2)} > 0, \qquad \pi_{t_A}^B = \pi_{t_B}^B = \frac{\beta\gamma X_B}{2(3\beta\bar{\beta} + \gamma^2)} > 0, \quad (51)$$

$$\pi_{t_A t_A}^A = \pi_{t_A t_B}^A = \pi_{t_B t_B}^B = \pi_{t_B t_A}^B = \frac{\beta\gamma^2}{4(3\beta\bar{\beta} - \gamma^2)} > 0, \quad (52)$$

and substituting the solutions in (49) and (50), we find

$$S^A_{t_A} = -\frac{D_A\beta\gamma(2\beta\bar{\beta}-\gamma^2)}{(3\beta\bar{\beta}-\gamma^2)(\beta\bar{\beta}-\gamma^2)} + \frac{X^A_C(6\beta\bar{\beta}-\gamma^2)}{4(3\beta\bar{\beta}-\gamma^2)} - \frac{t_A\beta(3\beta\bar{\beta}-\gamma^2)}{2(3\beta\bar{\beta}-\gamma^2)(\beta\bar{\beta}-\gamma^2)} + \pi^A_{t_A}, \quad (53)$$

$$S^B_{t_B} = -\frac{D_B\beta\gamma(2\beta\bar{\beta}-\gamma^2)}{(3\beta\bar{\beta}-\gamma^2)(\beta\bar{\beta}-\gamma^2)} + \frac{X^B_C(6\beta\bar{\beta}-\gamma^2)}{4(3\beta\bar{\beta}-\gamma^2)} - \frac{t_B\beta(3\beta\bar{\beta}-\gamma^2)}{2(3\beta\bar{\beta}-\gamma^2)(\beta\bar{\beta}-\gamma^2)} + \pi^B_{t_B}, \quad (54)$$

$$S^A_{t_At_A} = S^B_{t_Bt_B} = -\frac{4\beta\gamma^4(2\beta\bar{\beta}-\gamma^2)+\beta(\beta\bar{\beta}-\gamma^2)[\beta\bar{\beta}(30\beta\bar{\beta}-17\gamma^2)+2\gamma^2]}{8(3\beta\bar{\beta}-\gamma^2)^2(\beta\bar{\beta}-\gamma^2)^2} < 0, \quad (55)$$

$$S^A_{t_At_B} = S^B_{t_Bt_A} = \frac{\beta\gamma^2(10\beta\bar{\beta}-3\gamma^2)}{8(3\beta\bar{\beta}-\gamma^2)^2(\beta\bar{\beta}-\gamma^2)} + \pi^A_{t_At_B} > 0. \quad (56)$$

Since $S^A_{t_At_B} > 0$, $S^B_{t_Bt_A} > 0$, it follows from the expressions of $G^A_{t_At_B}$ and $G^B_{t_Bt_A}$ (see after (22)) and (52) that $G^A_{t_At_B} > 0$ and $G^B_{t_Bt_A} > 0$, and therefore from (25) and (26) that:

$$\frac{\partial t^A}{\partial h_{BA}} > 0, \quad \frac{\partial t^B}{\partial h_{BA}} > 0, \quad \frac{\partial t^B}{\partial h_{BA}} > 0, \quad \frac{\partial t^B}{\partial h_{AB}} > 0. \quad (57)$$

Moreover, the conditions in proposition 2 are satisfied. Therefore, cross-border lobbying increases domestic lobbying in both countries and thus optimal external tariffs in both countries.

Proposition 3 *In the specific model developed in this subsection, an increase in cross-border lobbying unambiguously increases equilibrium external tariff in both member countries, and thus make them even larger than their non-political equilibrium levels.*

That is, all the assumptions made in section 3, and the conditions stated in proposition 2, are satisfied for the specific model in section 3.2. Tariffs in the two member countries are strategic complements to each other for the following reasons. An increase in either tariffs reduces total exports by country C and this shifts up the inverse demand function of good D (see (38)) raising outputs in both member countries (see (41)). Since marginal profits are proportional to the output levels (see (51)), the marginals profits also increase with either tariff. Furthermore, the increase in domestic outputs in the member countries reduces the price of the domestically produced goods (see (44)) and the producer prices of country C's exports (see (45) and (46)). Thus, an increase in tariffs in one country increases the marginal value of other components of social welfare (consumers' surplus and tariff revenue), in the other country. Taking all these together, we find that tariffs in the two countries are strategic complements to each other.

4 Conclusion

Lobbying comes in different shapes and sizes. However, a society's perception of domestic lobbying tends to be very different from that of cross-border lobbying. It is therefore imperative that in formal models of lobbying, analytical distinctions are made between the the two aforesaid forms of lobbying. In this context, it is to be noted that the literature on cross border lobbying and its effects on trade policy is somewhat sparse. Notable exceptions are Gawande at al. (2006) and Stoyanov (2009). These papers, however, are primarily empirical and their focus is different from ours. We are concerned with the effect of parametric relaxation in government policies pertaining to foreign lobbying and how that may complement (or substitute for) domestic lobbying. In turn, we focus on how tariff policy against non-member nations may change in the face of such relaxation of rules pertaining to foreign lobbying.

In addition, we analyze effects of cross border lobbying for both an FTA and a CU. This is both novel and important, because there are some interesting qualitative differences between the two regimes. Most notably, while foreign lobbying unambiguously raises the CET in a Customs Union, the result depends on the pattern of strategic complementarity (or substitutability) for an FTA.

Finally, it is worth noting that our analysis uses a minimum of structure as it is laid down in section 2 and the first part of section 3. Thus, different competing models of trade may be accommodated in such a framework, and the results extend to these contexts. It is only in the last part of section 3 that we assume additional structure, where we use an oligopolistic model to unravel the pattern of strategic complementarity (substitutability) in the tariff reaction functions of the member nations. To our knowledge, this is the first paper that examines the effects of cross border lobbying, and compares the results between an FTA and CU, at this level of generality.

Appendix I

$$\beta_{11} = 3\alpha\rho'(h_{AA})\pi_{tt}^{A} + \alpha(\pi_t^A)^2\rho''(h_{AA}), \tag{I.1}$$

$$\beta_{12} = 2\alpha\rho'(h_{AA})\pi_t^A\pi_{tt}^A \cdot \frac{\partial t}{\partial h_{BB}} + (1-\alpha)\pi_{tt}^B\rho'(h_{BB}) > 0, \tag{I.2}$$

$$\beta_{13} = -2\alpha\rho'(h_{AA})\pi_t^A\pi_{tt}^A \cdot \frac{\partial t}{\partial h_{BA}} - \alpha\pi_{tt}^B\rho'(h_{BA}) < 0, \tag{I.3}$$

$$\beta_{14} = -2\alpha\rho'(h_{AA})\pi_t^A\pi_{tt}^A \cdot \frac{\partial t}{\partial h_{AB}} - (1-\alpha)\pi_{tt}^A\rho'(h_{AB}) < 0, \tag{I.4}$$

$$\beta_{22} = 3(1-\alpha)\rho'(h_{BB})\pi_{tt}^B + (1-\alpha)(\pi_t^B)^2\rho''(h_{BB}), \tag{I.5}$$

$$\beta_{21} = 2(1-\alpha)\rho'(h_{BB})\pi_t^B\pi_{tt}^B \cdot \frac{\partial t}{\partial h_{AA}} + \alpha\pi_{tt}^A\rho'(h_{AA}) > 0, \tag{I.6}$$

$$\beta_{23} = -2(1-\alpha)\rho'(h_{BB})\pi_t^B\pi_{tt}^B \cdot \frac{\partial t}{\partial h_{BA}} - \alpha\pi_{tt}^B\rho'(h_{BA}) < 0, \tag{I.7}$$

$$\beta_{24} = -2(1-\alpha)\rho'(h_{BB})\pi_t^B\pi_{tt}^B \cdot \frac{\partial t}{\partial h_{AB}} - (1-\alpha)\pi_{tt}^A\rho'(h_{AB}) < 0. \tag{I.8}$$

Appendix II

$$
\begin{aligned}
\alpha_{11} &= \pi^A_{t_A}[\pi^A_{t_B}G^B_{t_Bt_A} - \pi^A_{t_A}G^B_{t_Bt_B}]\rho''(h_{AA}) + \rho'(h_{AA})[G^B_{t_Bt_A}\pi^A_{t_At_B} - G^B_{t_Bt_B}\pi^A_{t_At_A}] \\
&\quad + \frac{[\pi^A_{t_A}\rho'(h_{AA})]^2 G^B_{t_Bt_A}[\pi^A_{t_Bt_B}G^B_{t_Bt_A} - \pi^A_{t_Bt_A}G^B_{t_Bt_B}]}{\Delta_3} \qquad \text{(II.1)} \\
&\quad + \frac{[\pi^A_{t_B}G^B_{t_Bt_A} - 2\pi^A_{t_A}G^B_{t_Bt_B}][\rho'(h_{AA})]^2[\pi^A_{t_At_B}G^B_{t_Bt_A} - \pi^A_{t_At_A}G^B_{t_Bt_B}]}{\Delta_3},
\end{aligned}
$$

$$
\begin{aligned}
\alpha_{12} &= \frac{\rho'(h_{BB})\left(\pi^B_{t_Bt_A}G^B_{t_Bt_A} - \pi^B_{t_Bt_B}G^B_{t_Bt_B}\right)\left(\pi^A_{t_B}\pi^A_{t_A}\rho'(h_{AA}) + G^A_{t_At_B}\right)}{G^B_{t_Bt_A}} \\
&\quad + \frac{\pi^A_{t_A}\pi^B_{t_B}\rho'(h_{AA})\rho'(h_{BB})G^B_{t_Bt_A}[\pi^A_{t_Bt_A}G^A_{t_Bt_B} - \pi^A_{t_Bt_B}G^A_{t_At_A}]}{\Delta_3} \qquad \text{(II.2)} \\
&\quad + \frac{\pi^B_{t_B}\rho'(h_{AA})\rho'(h_{BB})[\pi^A_{t_B}G^B_{t_Bt_A} - 2\pi^A_{t_A}G^B_{t_Bt_B}][\pi^A_{t_At_A}G^A_{t_At_B} - \pi^A_{t_At_B}G^A_{t_At_A}]}{\Delta_3} > 0,
\end{aligned}
$$

$$
\begin{aligned}
\alpha_{13} &= -[G^B_{t_Bt_A}\pi^B_{t_At_B} - G^B_{t_Bt_B}\pi^B_{t_At_A}]\rho'(h_{BA}) \\
&\quad - \frac{\pi^A_{t_A}\pi^B_{t_A}\rho'(h_{AA})\rho'(h_{BA})[\pi^A_{t_Bt_B}G^B_{t_Bt_A} - \pi^A_{t_Bt_A}G^B_{t_Bt_B}]}{\Delta_3} \qquad \text{(II.3)} \\
&\quad - \frac{\rho'(h_{AA})\rho'(h_{BA})[\pi^A_{t_B}G^B_{t_Bt_A} - 2\pi^A_{t_A}G^B_{t_Bt_B}][\pi^A_{t_At_B}G^B_{t_Bt_A} - \pi^A_{t_At_A}G^B_{t_Bt_B}]}{\Delta_3} < 0,
\end{aligned}
$$

$$
\begin{aligned}
\alpha_{14} &= -\frac{\rho'(h_{AB})\left(\pi^B_{t_Bt_A}G^B_{t_Bt_A} - \pi^B_{t_Bt_B}G^B_{t_Bt_B}\right)\left(\pi^A_{t_B}\pi^A_{t_A}\rho'(h_{AA}) + G^A_{t_At_B}\right)}{G^B_{t_Bt_A}} \\
&\quad - \frac{\pi^A_{t_A}\pi^A_{t_B}\rho'(h_{AA})\rho'(h_{AB})G^B_{t_Bt_A}[\pi^A_{t_At_B}G^A_{t_At_B} - \pi^A_{t_Bt_B}G^A_{t_At_A}]}{\Delta_3} \qquad \text{(II.4)} \\
&\quad - \frac{\pi^A_{t_B}\rho'(h_{AA})\rho'(h_{AB})[\pi^A_{t_B}G^B_{t_Bt_A} - 2\pi^A_{t_A}G^B_{t_Bt_B}][\pi^A_{t_At_A}G^A_{t_At_B} - \pi^A_{t_At_B}G^A_{t_At_A}]}{\Delta_3} < 0,
\end{aligned}
$$

$$\begin{aligned}
\alpha_{22} &= \pi^B_{t_B}[\pi^B_{t_A}G^A_{t_At_B} - \pi^B_{t_B}G^A_{t_At_A}]\rho''(h_{BB}) + \rho'(h_{BB})[G^A_{t_At_B}\pi^B_{t_Bt_A} - G^A_{t_At_A}\pi^B_{t_Bt_B}] \\
&\quad + \frac{[\pi^B_{t_B}\rho'(h_{BB})]^2 G^A_{t_At_B}[\pi^B_{t_At_A}G^A_{t_At_B} - \pi^B_{t_At_B}G^A_{t_At_A}]}{\Delta_3} \qquad \text{(II.5)} \\
&\quad + \frac{[\pi^B_{t_A}G^A_{t_At_B} - 2\pi^B_{t_B}G^A_{t_bt_A}][\rho'(h_{BB})]^2[\pi^B_{t_Bt_A}G^A_{t_At_B} - \pi^B_{t_Bt_B}G^A_{t_At_A}]}{\Delta_3},
\end{aligned}$$

$$\begin{aligned}
\alpha_{21} &= \frac{\rho'(h_{AA})\left(\pi^A_{t_At_B}G^A_{t_At_B} - \pi^A_{t_At_A}G^A_{t_At_A}\right)\left(\pi^B_{t_A}\pi^B_{t_B}\rho'(h_{BB}) + G^B_{t_Bt_A}\right)}{G^A_{t_At_B}} \\
&\quad + \frac{\pi^B_{t_B}\pi^A_{t_A}\rho'(h_{BB})\rho'(h_{AA})G^A_{t_At_B}[\pi^B_{t_At_B}G^B_{t_At_A} - \pi^B_{t_At_A}G^B_{t_Bt_B}]}{\Delta_3} \qquad \text{(II.6)} \\
&\quad + \frac{\pi^A_{t_A}\rho'(h_{BB})\rho'(h_{AA})[\pi^B_{t_A}G^A_{t_At_B} - 2\pi^B_{t_B}G^A_{t_At_A}][\pi^B_{t_Bt_B}G^B_{t_Bt_A} - \pi^B_{t_Bt_A}G^B_{t_Bt_B}]}{\Delta_3} > 0,
\end{aligned}$$

$$\begin{aligned}
\alpha_{23} &= -\frac{\rho'(h_{BA})\left(\pi^A_{t_At_B}G^A_{t_At_B} - \pi^A_{t_At_A}G^A_{t_At_A}\right)\left(\pi^B_{t_A}\pi^B_{t_B}\rho'(h_{BB}) + G^B_{t_Bt_A}\right)}{G^A_{t_At_B}} \\
&\quad - \frac{\pi^B_{t_B}\pi^B_{t_A}\rho'(h_{BB})\rho'(h_{BA})G^A_{t_At_B}[\pi^B_{t_Bt_A}G^B_{t_Bt_A} - \pi^B_{t_At_A}G^B_{t_Bt_B}]}{\Delta_3} \qquad \text{(II.7)} \\
&\quad - \frac{\pi^B_{t_A}\rho'(h_{BB})\rho'(h_{BA})[\pi^B_{t_A}G^A_{t_At_B} - 2\pi^B_{t_B}G^A_{t_At_A}][\pi^B_{t_Bt_B}G^B_{t_Bt_A} - \pi^B_{t_Bt_A}G^B_{t_Bt_B}]}{\Delta_3} < 0,
\end{aligned}$$

$$\begin{aligned}
\alpha_{24} &= -[G^A_{t_At_B}\pi^A_{t_Bt_A} - G^A_{t_At_A}\pi^A_{t_Bt_B}]\rho'(h_{AB}) \\
&\quad - \frac{\pi^B_{t_B}\pi^A_{t_B}\rho'(h_{BB})\rho'(h_{AB})[\pi^B_{t_At_A}G^A_{t_At_B} - \pi^B_{t_At_B}G^A_{t_At_A}]}{\Delta_3} \qquad \text{(II.8)} \\
&\quad - \frac{\rho'(h_{BB})\rho'(h_{AB})[\pi^B_{t_A}G^A_{t_At_B} - 2\pi^B_{t_B}G^A_{t_At_A}][\pi^B_{t_Bt_A}G^A_{t_At_B} - \pi^B_{t_Bt_B}G^A_{t_At_A}]}{\Delta_3} < 0.
\end{aligned}$$

References

[1] Abrego, L., R.G. Riezman and J. Whalley, 2006, How Often are Propositions on the Effects of Regional Trade Agreements Theoretical Curiosa?, *Journal of International Economics*, 68, 59-78.

[2] Bagwell, Kyle and Staiger, Robert W, 1997, Multilateral Tariff Cooperation during the Formation of Free Trade Areas, *International Economic Review*, 38(2), 291-319.

[3] Bagwell, Kyle and Staiger, Robert W, 1998, Will preferential trade agreements undermine the multilateral trading system?, *The Economic Journal*, 108, 1162-1182.

[4] Bandyopadhyay, S. and H. J. Wall, 1999, Customs Union or Free Trade Area? The Role of Political Asymmetries, *Review of International Economics*, 7, 665-72.

[5] Bhagwati, J.N., 1982, Directly-Unproductive Profit-Seeking (DUP) Activities, *Journal of Political Economy*, 90, 988 - 1002.

[6] Bhagwati, J.N., D. Greenaway and A. Panagariya, 1998, Trading preferentially: theory and policy, *The Economic Journal*, 108, 1128-1148.

[7] Bond, E.W., R.G. Riezman and C. Syropoulos, 2004, Strategic and Welfare Theoretic Analysis of Free Trade Areas, *Journal of International Economics*, 64, 1-27.

[8] Cadot, O., J. de Melo and M. Olarreaga, 1999, Regional Integration and Lobbying for Tariffs against Nonmembers, *International Economic Review*, 40, 635-657.

[9] Findlay, R. and S. Wellisz, 1982, Endogenous Tariffs and the Political Economy of Trade Restrictions and Welfare, in: J. Bhagwati, ed., *Import Competition and Response*, University of Chicago.

[10] Gawande, K., P. Krishna and M. Robbins, 2006, Foreign Lobbies and US Trade Policy, *Review of Economics and Statistics*, 88, 563-71.

[11] Gatsios, K. and L. Karp, 1991, Delegation games in customs unions, *Review of Economic Studies*, 58, 391-397.

[12] Gatsios, K. and L. Karp, 1995, Delegation in a general equilibrium model of customs unions, *European Economic Review*, 39, 319-333.

[13] Grossman, G.M. and E. Helpman, 1994, Protection for Sale, *American Economic Review* 84, 833-50.

[14] Grossman, G.M. and E. Helpman, 1995, The Politics of Free Trade Agreements, *American Economic Review*, 85, 667-90.

[15] Hillman, A.L., 1982, Declining industries and political-support protectionist motives, *American Economic Review*, 72, 1180-87.

[16] Krishna, P., 1998, Regionalism and Multilateralism: A Political Economy Approach, *Quarterly Journal of Economics*, 113, 227-251.

[17] Magee. S.P., Brock, W.A. and Young, L., 1989, *Black hole tariffs and endogenous policy theory*. Cambridge: Cambridge University Press.

[18] Mayer, W., 1984, Endogenous tariff formation, *American Economic Review*, 74, 970-985.

[19] Melatos, Mark and Woodland, Alan, 2007, Endogenous trade bloc formation in an asymmetric world, *European Economic Review*, 51, 901-924.

[20] Panagariya, A. and R. Findlay, 1996, A Political Economy Analysis of Free Trade Areas and Customs Unions, in: Feenstra, R.C., G.M. Grossman and D.A. Irwin, eds., *The Political Economy of Trade Policy: Papers in Honor of Jagdish Bhagwati*, MIT Press.

[21] Panagariya, A. and P. Krishna, 2002, On necessarily welfare-enhancing free trade areas, *Journal of International Economics*, 57, 353-367.

[22] Raimondos-Møller, P. and A.D. Woodland, 2006, Non-preferential Trading Clubs, *Journal of International Economics*, 68, 79-91.

[23] Richardson, M., 1994, Customs Unions and Domestic Taxes, *Canadian Journal of Economics*, 27, 537-550.

[24] Richardson, M., 1995, Tariff revenue competition in a free trade area, *European Economic Review*, 39, 1429-1437.

[25] Riezman, R.G., 1979, A 3x3 Model of Customs Unions, *Journal of International Economics*, 9, 341-354..

[26] Rodrik, D., 1995, Political Economy of Trade Policy, Chapter-28 in: G.M. Grossman and K. Rogoff, eds., *Handbook of International Economics*, Volume 3, 1457-94, Elsevier Science, Amsterdam.

[27] Saggi, K., 2006, Preferential Trade Agreements and Multilateral Tariff Cooperation, *International Economic Review*, 47, 29-57.

[28] Schiff, M. and L.A. Winters, 2003, *Regional Integration and Development*, World Bank, Oxford University Press.

[29] Stoyanov, A., 2009, Trade policy of a free trade agreement in the presence of foreign lobbying, *Journal of International Economics*, 77, 37-49.

[30] Viner, J., 1950, *The Customs Unions Issue*, Carnegie Endowment for International Peace, New York.